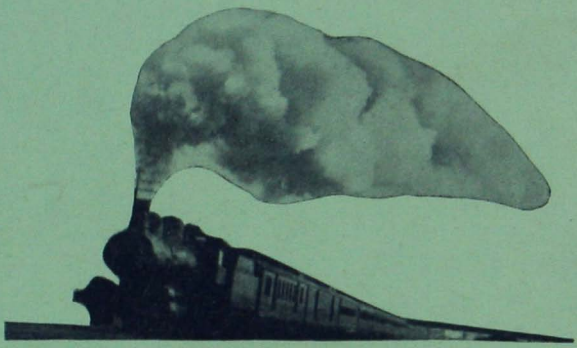
LESSONS



From the

Cow and Hen Special

Northern Pacific Railway

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PREPARED BY
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The Cow-Path to Greater Income

OLE LARSON, whose dairy farm furnishes figures for exhibits on the Cow and Hen train, as you might suspect, is not an individual member of a cow-testing association but he is rather a composite of a large group of men who have built up their dairy businesses through cow-testing association records.

Ole's herd, to start with, was a fair herd of common cows. They were considerably underfed. The county agent got Ole to join a cow-testing association with the following results:

The average butterfat per cow was 150 pounds.

Income per cow	$75
Feed cost per cow	$39
Return over feed cost per cow	$ 36
Return over feed cost for 12 cows	432

Two of the cows that produced only 110 pounds to 130 pounds of butterfat each were sold to the butcher. Early in the year, too, Ole sold his grade bull and bought a purebred bull. The money from the old bull and the two culled cows more than paid for the purebred bull.

The second year Ole fed some high protein feed (linseed meal and cotton seed) to balance up his ration. He fed the cows according to production—during the winter, 8 pounds of grain to each pound of fat produced.

The 10 cows left averaged 200 pounds butterfat.

Income per cow	$100.00
Feed cost per cow	44.00
Return over feed cost per cow	$ 56.00
On 10 cows	560.00
First year 12 cows	432.00
More than first year	$128.00

Realizing the need for a better roughage Ole started a field of alfalfa in the second year.

The third year, he began feeding alfalfa hay.

The cows averaged 250 pounds butterfat.

Income per cow	$125.00
Feed cost per cow	50.00
Return over feed cost per cow	$ 75.00
On 10 cows	750.00
First year	432.00
More than first year	$318.00

Ole used the extra money to remodel his barn a bit and put in drinking cups for the cows.

The fourth year, the four poorest cows were sold to make room for four two-year-old grade heifers that freshened.

The six best old cows and the four two-year-olds averaged 286 pounds of butterfat.

Income per cow	$143.00
Feed cost per cow	54.00
Return over feed cost	$ 89.00
On 10 cows	890.00
First year	432.00
More than first year	$458.00

This year he built a bull-pen to make it easier to take care of the bull. He bought a power washing machine for his wife and a radio for the family.

The fifth year, four more of the old cows were sold to make room for five more grade heifers.

The 11 head this year averaged 318 pounds of butterfat.

Income per cow	$ 159.00
Feed cost per cow	57.00
Return over feed cost per cow	$ 102.00
On the 11 cows	1122.00
First year	432.00
More than first year	$ 690.00

This year they were able to put a furnace and water in the home.

The sixth year, the last two of the old cows and one of the heifers that did not come up to expectations were sold.

The herd this year averaged 350 pounds butterfat.

Income per cow	$ 175.00
Feed cost per cow	61.00
Return over feed cost per cow	$ 114.00
On the 12 cows	1368.00
First year	432.00
More than first year	$ 936.00

Part of this money was used to send Ole, Junior, to college.

The Four Cows on the Train

TOMTIT, a poor grade Holstein cow. Little ability to produce milk. Beside that, she was poorly fed. She and her kind produce only about 125 pounds of butterfat.

Mary, another poor grade Holstein cow, lacking in ability to produce, yet with plenty of feed she produced 179 pounds of butterfat at a feed cost of $41.87. Her return over feed cost was $47.13.

Rose, a good grade Holstein. Good ability but limited in her feed ration. She produced 246 pounds of butterfat with only 325 pounds of grain for the year. Her feed cost was $37.58 and her return over feed cost was $85.42.

Duchess, another good grade cow, well fed, produced 442 pounds of butterfat. She received 2,637 pounds of grain. Her feed cost was $72 and her return over feed cost $149.

Turkeys No Longer Hard to Raise

THE turkey exhibit on the Cow and Hen train illustrates the OLD and NEW ways of raising turkeys. Many farmers are convinced that turkeys are hard to raise because their past efforts have failed. Under present farm conditions, it is practically impossible to raise turkeys by the old scrambled-egg style of allowing the turkeys to run all over the farm.

Many farmers think that feeding turkeys is a pure waste of feed because of the general idea that turkeys thrive best on grasshoppers. In the old pioneer days when all the soil of the Northwest was clean and free from disease, turkeys could be raised without any particular trouble. It is now quite another story. Most of our farms are contaminated with the various diseases of chickens and turkeys. This fact makes it absolutely necessary that turkeys be raised entirely apart from chickens.

Blackhead is the chief disease of turkeys. This disease is transmitted by chickens and the farmer who really wants to raise turkeys must keep them apart from chickens and on ground where chickens have not roamed. In order to control the turkeys, we must raise them in yards at least 200 yards from the farm buildings and on a green pasture, if possible. This method of growing turkeys has been generally called the MINNESOTA PLAN of turkey raising. There is NOTHING IN IT THAT ANY FARMER CANNOT DO.

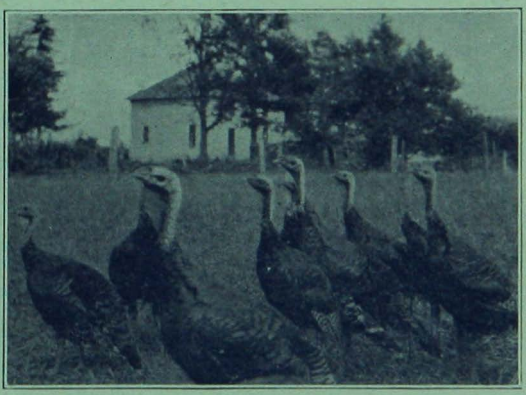
The exhibit points out the fact that one farmer allows the turkey flock to run with chickens and all around the farm buildings and most of them die of Blackhead, worms and lice or mites. The other farmer across the way practices the Minnesota Plan and raises 90 per cent of all the turkeys hatched. This is not a mere dream. The plan has been in operation for four or five years and is meeting with splendid success wherever given a fair trial. Someone has said that if this plan is so easy everyone will adopt it and the market will be overloaded with cheap turkeys. This does not worry

any of us much because the use of yards and their rotation or moving is too much trouble for most folks and they try to cut corners and consequently slip and turkeys begin to die.

The plan in brief is to keep about 12 or 15 hens and two Toms for the first year. Start feeding the breeding flock for egg production about the first of January. Confine the breeders in a yard about 50 feet wide and 200 feet long. Keep the eggs not over 10 days or two weeks and hatch them in incubators, if possible. Use a brooder house and place this house at least 200 yards from the farm buildings.

This entails considerable walking in caring for the turkeys and some object to it, but it is a life-saver for the young turks. When the birds are about eight weeks old, the brooder house is set aside and the young growing flock is placed in a quarter-acre lot fenced in with five-foot woven wire. This size is big enough for 200 poults. Feed hoppers and a cheap shelter with roosts are provided and the flock is given a new yard once each month.

Any reader who desires more information can secure a booklet describing this plan in detail. Address the Mailing Room, University Farm, St. Paul, and ask for the bulletin called "Talking Turkey."



Pete Makes Bigger Poultry Profits

PETE'S flock, facts about which are exhibited on the Cow and Hen train, is a real Minnesota flock, whose records for nearly five years have been sent monthly to the Agricultural Extension Service. In the first four years the flock made a net return, after paying all expenses, amounting to $5,723.50. This represents an average of more than $1,430 a year. The returns for the current year will run well beyond that amount. Starting with about 700 hens and pullets each fall, Pete culls his flock until the average flock for the year is only 471 hens.

As shown in the exhibit, Pete brought about a marked increase in his production the second year and continued to make a steady, though smaller, improvement the following years.

ANNUAL PRODUCTION IN PETE'S FLOCK

Year	Eggs per Hen
1925	99
1926	147
1927	166
1928	167
November 1-August 31, 1929	161

Early Hatching

Accounting for the increase of nearly 50 per cent in eggs in the second year Pete said: "Well, for one thing, I had pullets in 1924 hatched as late as June 27. I never did that again. Now I have all my chicks by the middle of May." The exhibit shows that the pullets hatched June 27, 1924, laid not at all up to January 1, and Pete had nothing but their feed bills to show for his labor. In 1928, 770 April and May hatched pullets had brought him, for eggs, $944.40 by December 31.

Culling

Pete had good stock. He bought eggs and chicks from breeders of production Leghorns. Some of his results should be credited to his securing stock of good production breeding. Furthermore, he recognized that even in a well-bred flock some birds are better than others. So he practiced culling throughout the year. The best result of culling is the saving in feed. In 1928 approximately $325

was thus saved in feed alone, the feed saved amounting to nearly six tons.

Sanitation

Pete has had his losses in both chicks and hens. He was a little crowded for range but by clearing out the brush he added to his available space and then laid out his yards to provide fresh ground every year. Four portable 8'x12' brooder houses are used, moved to new ground each year and kept fenced, not only away from the chick range of the previous year but also entirely away from the old flock. Under this arrangement there is small chance of an outbreak of coccidiosis or an infestation of worms. In 1928 his mortality in chicks from hatching to maturity was only 6 per cent, whereas the state average for all record flocks, year after year, is about 30 per cent.

Feeding

Pete's ration has shown little change in the four years. He simply states that with experience he has watched his flock carefully and has been able to feed more nearly according to their needs. Following is one mash mixture, as shown on the bill:

400 pounds ground corn	100 pounds meat scrap
100 pounds middlings	50 pounds bone meal
100 pounds ground oats	50 pounds pearl grit
100 pounds ground wheat	8 pounds salt

With slight seasonal changes this mash has been used regularly. With this was fed in the evening all the cracked corn the hens would eat mixed with 20 per cent cod liver oil.

Pete says he uses home-mixed feeds, as he can feed so much more cheaply. Even at that, his feed has cost on the average from $2.50 to $3.25 a hundred, as all feeds have to be shipped into his community. This increases his feed cost but prices received for eggs and market poultry are correspondingly high.

Summary

Four-year records on Pete's flock show the following necessary steps in flock improvement and increased profit:

1. **Hatch early—by May 15 at least**
2. **Cull regularly and often**
3. **Grow chicks on clean ground**
4. **Feed a balanced ration**

Poultry House Construction Is Important

THE buildings carried by the Cow and Hen train are:

(1) A full-sized brooder house

(2) A cross section of a 16'x30' farm poultry house suitable for Northern Minnesota.

The brooder house will accommodate a stove and about 350 chicks until the latter are six weeks old. It is made to be warm, dry, well lighted and free from draughts. Note that it is on runners so that it may be easily hauled to fresh ground each season. A straw loft is not necessary in the brooder house.

The laying house is constructed to suit a cold climate such as is experienced during Minnesota winters. Note that it is double-boarded with both fiber-board insulating material and boards on the outside of the studding and the same insulating material on the inside.

If properly constructed, the straw loft is an excellent means of providing ventilation. It will work only if the

ceiling be slatted (not tight), and if there be an opening above the straw in each end of the gable. The windows must be adjusted daily to meet varying climatic conditions. When this is done the house can be kept comfortable in the coldest weather.

Hoppers, drinking fountains and nests should be up off the floor to keep their contents clean and to save floor space.

Nearly every old or unsatisfactory hen house can be remodelled and improved at very little expense. A straw loft can be put in many of the old style shed-roof buildings which have the front so high that the building is always cold. Extra insulation on the inside of the house, especially on the north and west sides, will help. A straw pack on the walls is better than nothing at all. Many houses can be improved simply by adding more windows so that light reaches every corner.

A cement floor is best. It will not be damp if laid over 10 inches of field stone, broken tile or cinders. Keep it covered with 4 or 5 inches of clean straw.

Further pointers on housing, and plans of the buildings carried on the train, are found in Special Bulletins 105 and 121 of the Agricultural Extension Division, University of Minnesota, St. Paul.

Poultry Research Society

The exhibits of poultry production and marketing of poultry products and the services of Dr. William H. Lapp are provided by the Poultry Research Society and the Railway Express Agency Inc.

The interests of these organizations center about the production and marketing of high quality products as an important element in satisfying the demands of the trade for such products.

Co-operating Agencies

Northern Pacific Railway
Minnesota Agricultural Extension Service
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Poultry Research Society
National Breed Associations
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Local Community Organizations

Remember These Dates

January 20 to 25, 1930

FARMERS' AND HOMEMAKERS' WEEK

University Farm, St. Paul